WHAT IS CLAIMED IS:

1. A system for reducing light energy pulse peak power, comprising:

at least one beamsplitter for splitting a light energy pulse into a plurality of pulses;

at least one optical delay line for delaying and redirecting said plurality of pulses;

at least one loss compensator for compensating for energy losses of pulses routed through the system;

wherein the system redirects the light energy pulse using each beamsplitter, optical delay line, and loss compensator such that at least one pulse strikes a target at a time offset from that of at least one other pulse.

2. The system of claim 1, wherein:

said at least one beamsplitter comprises two beamsplitters;

said at least one delay line comprises two optical delay lines; and

said at least one loss compensator comprises two loss compensators;

wherein said arrangement is oriented to cause four pulses to strike said target at different times.

3. The system of claim 1, wherein said optical delay line comprises a plurality of prisms for receiving light energy and redirecting light energy in a predetermined manner thereby causing delay of application of said pulses to said target.

4. The system of claim 1, wherein said optical delay line comprises at least one TIR surface and at least one AR surface.

5. The system of claim 1, wherein said optical delay line comprises at least one surface oriented to utilize Brewster's angle.

6. The system of claim 1, wherein said optical delay line employs a plurality of prisms oriented such that light energy pulses make multiple passes between said prisms prior to exiting said optical delay lines.

7. The system of claim 1, wherein said system causes four pulses to contact said target at four different times.

8. A method for reducing peak power in a light energy pulse generated by a light emitting device, comprising:

dividing said light energy pulse into a plurality of pulses;

delaying at least one of said plurality of pulses;

compensating predetermined pulses for energy loss resulting from said delaying step; and

applying said pulses to a target at predetermined times.

9. The method of claim 8, wherein said dividing step comprises passing said light energy pulse through a beamsplitter to split said light energy pulse into said plurality of pulses.

10. The method of claim 8, wherein said delaying step comprises passing at least one pulse received from said dividing step to at least one optical delay line, wherein passage of said at least one pulse to said at least optical delay line induces a delay relative to at least one other pulse.

11. The method of claim 8, wherein said compensating step comprises passing at least one pulse through a loss compensation arrangement comprising an attenuator.

12. The method of claim 8, wherein said predetermined times of said applying step comprise applying a first pulse at a first time to said target and a second pulse at a later time to said target.

13. The method of claim 8, wherein said delaying step further comprises passing at least one of said plurality of pulses to a second beamsplitter.

14. The method of claim 8, wherein said dividing step comprises dividing said light energy pulse into two pulses.

15. The method of claim 8, wherein said dividing step comprises dividing said light energy pulse into four pulses.

16. A system for reducing speckle contrast in a single energy pulse, comprising:

a plurality of beamsplitters oriented to receive said laser pulse and split said laser pulse into a plurality of laser pulses; and

a plurality of optical delay elements oriented to delay at least one of said plurality of pulses, wherein said optical delay elements cause said plurality of laser pulses to contact a target at predetermined relative times;

wherein said beamsplitters, reflective surfaces, and delay elements are oriented to provide said plurality of pulses to said target at varying angular offsets.

17. The system of claim 16, wherein:

said at least one beamsplitter comprises two beamsplitters;

said at least one optical delay elements comprises five reflective surfaces; and

said at least one loss compensator comprises two loss compensators;

wherein said arrangement is oriented to cause four pulses to strike said target at different times.

17. The system of claim 16, wherein said optical delay elements comprises a plurality of prisms for receiving light energy and redirecting light energy in a predetermined manner thereby causing delay of application of said pulses to said target.

18. The system of claim 16, wherein said optical delay elements comprises at least one TIR surface and at least one AR surface.

19. The system of claim 16, wherein said optical delay elements comprises at least one reflective surface oriented to utilize Brewster's angle.

20. The system of claim 16, wherein said optical delay elements employs a plurality of prisms oriented such that light energy pulses make multiple passes between said prisms prior to exiting said optical delay elements.

21. The system of claim 16, wherein said system causes four pulses to contact said target at four different times.

22. A system for reducing speckle contrast in in a single energy pulse, comprising:

a grating oriented at a predetermined angle relative to said light energy pulse generator such that receipt and transmission of a pulse received by

said grating delays a first portion of said pulse relative to a second portion of said pulse; and

a target for receiving said first portion of said pulse at a first time and said second portion of said pulse at a second time.

23. The system of claim 22 where the grating is used in combination with a light pipe or lens array to create an overlaping of different spatial locations on the beam.

24. The system of claim 22, used in combination with the system of claim 16 to further reduce the contrast of speckle from a single energy pulse.

25. The system of claim 1, wherein said loss compensator in adjusted to provide pulses with substantially uniform amplitude.

26. The system of claim 1, wherein said loss compensator includes a polarizer.

27. The system of claim 1, wherein said loss compansator includes an absorbing or reflecting optical attenuator.

28. The system of claim 1, wherein said optical delay line includes a White cell.

29. The system of claim 1, wherein said optical delay line includes a Herriot cell.

30. A method for increasing the repetition rate of illumination from a pulsed energy source comprising:

dividing said pulsed energy source into a plurality of pulsed energy sources;

delaying at least one of said plurality of pulsed energy sources; and

compensating predetermined pulses for energy loss resulting from said delaying step.

31. The method of claim 30 where the length of each pulse is additionally increased using a grating as in the system of claim 16.

32. The method of claim 31, where the repetition rate in increased and individual pulses are stretched in time to produce a continuous or nearly continuous illumination source.